

CLAIMS

1. An apparatus for drying ceramic molded articles, comprising a drying chamber for accommodating the ceramic molded articles, a plurality of microwave generators for supplying microwave energy in the frequency range of 300 MHz to 300 GHz into said drying chamber, and a conveyor for charging said ceramic molded articles continuously into said drying chamber, conveying said ceramic molded articles through said drying chamber and delivering said ceramic molded articles from said drying chamber,

wherein said drying chamber has arranged therein said plurality of said microwave generators in the direction of conveyance of said conveyor and at least a sensor for detecting the distribution of said ceramic molded products in said drying chamber, and

wherein each of said microwave generators is adapted to change the output thereof in accordance with the distribution of said ceramic molded articles in said drying chamber.

2. An apparatus for drying ceramic molded articles according to claim 1,

wherein a plurality of drying blocks divided along the direction of conveyance are formed by a plurality of partitioning walls each having an opening through which said ceramic molded articles conveyed by said conveyor pass in said drying chamber, and

wherein one or a plurality of said microwave generators arranged in each of said drying blocks is adapted to change the output thereof in accordance with the quantity of the ceramic molded articles existing in said drying block.

3. An apparatus for drying ceramic molded articles according to claim 1,

wherein at least a radio wave absorber is formed on the inner peripheral wall of said drying chamber, and

wherein each of said microwave generators is adapted to change the output thereof in accordance with the quantity of the ceramic molded articles existing in a predetermined range from said each microwave generator.

4. An apparatus for drying ceramic molded articles according to claim 1,

wherein each of said ceramic molded articles is adapted to be placed on a rest and conveyed through said drying chamber,

wherein a substantially tabular reflector for reflecting the microwave energy is mounted in the direction substantially at right angles to the direction of conveyance, at selected one of the forward and rear end portions of at least a part of said rests in the direction of conveyance, and

wherein each of said microwave generators is adapted to change the output thereof in accordance with the quantity of said ceramic molded articles existing in a drying area formed between adjacent ones of said reflectors in said drying chamber.

5. An apparatus for drying ceramic molded articles according to claim 1,

wherein a radiation port for radiating the microwave energy from each of said microwave generators into said drying chamber is opened to each of the ceiling and the bottom in said drying chamber.

6. An apparatus for drying ceramic molded articles according to claim 5,

wherein said radiation port is open to each of the two end portions of each of said ceiling and said bottom extending in the direction substantially at right angles to the direction of conveyance.

7. An apparatus for drying ceramic molded articles according to claim 1,

wherein a radiation port for radiating the microwave energy into said drying chamber from said

microwave generators is opened to each of the two lateral side surfaces extending in parallel to the direction of conveyance in said drying chamber.

5        8.    An apparatus for drying ceramic molded articles according to claim 7,

             wherein said radiation port is opened to each of the upper and lower end portions of said two lateral side surfaces.

10       9.    An apparatus for drying ceramic molded articles according to claim 1,

             wherein each of said ceramic molded articles has a honeycombed structure formed with a multiplicity of cells by a plurality of cell walls arranged in honeycomb form.

15       10.   A method of drying, by microwave energy radiation, clay-like honeycombed molded articles conveyed in a drying chamber, using a drying apparatus comprising said drying chamber for accommodating the ceramic molded articles, a plurality of microwave generators arranged  
20       along the direction of conveyance in said drying chamber for supplying microwave energy in a frequency range of 300 MHz to 300 GHz into said drying chamber, and a conveyor for charging said ceramic molded articles continuously into said drying chamber, conveying said  
25       ceramic molded articles through said drying chamber and delivering said molded articles from said drying chamber,

             wherein the output of each of said microwave generators is changed in accordance with the distribution of said ceramic molded articles in said  
30       drying chamber.

             11.   A method of drying ceramic molded articles according to claim 10,

             wherein said drying chamber includes a plurality of drying blocks segmented in the direction of conveyance by a plurality of partitioning walls each  
35       having an opening to pass said ceramic molded articles conveyed in said drying chamber,

wherein at least one microwave generator is arranged in each of said drying blocks, and

wherein the output of each of said microwave generators is changed in accordance with the quantity of the ceramic molded articles existing in each of said drying blocks.

12. A method of drying ceramic molded articles according to claim 10,

wherein at least a radio wave absorber is formed on the inner peripheral wall of said drying chamber, and

wherein the output of each of said microwave generators is changed in accordance with the quantity of the ceramic molded articles existing in a predetermined range from said each of said microwave generators.

13. A method of drying ceramic molded articles according to claim 10,

wherein each of said ceramic molded articles is placed on a rest and charged and dried in said drying chamber,

wherein a substantially tabular reflector for reflecting the microwave energy is mounted substantially at right angles to the direction of conveyance at selected one of the front and rear end portions of each of at least a part of said rests in the direction of conveyance, and

wherein the output of each of said microwave generators is changed in accordance with the quantity of the ceramic molded articles existing in a drying area formed between adjacent ones of said reflectors and the number of said microwave generators for supplying microwave energy into said drying area in said drying chamber.

14. A method of drying ceramic molded articles according to claim 13,

wherein said ceramic molded articles are

charged into said drying chamber in such a manner that  
the interval between said adjacent ones of said  
reflectors is in the range of 30 % to 200 % of the  
interval between said microwave generators arranged  
5 equidistantly along the direction of conveyance in said  
drying chamber.